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(54) Security closure for bottles

(57) A security closure for bottles (2), which ensures the desired security even when subjected to the joint action of heating and pulling to remove it fraudulently, includes a pourer (5), a non-return valve in the pourer, a band (8) coaxial with the pourer for retaining the pourer on the bottle, a plurality of tongues (26) on the band for snap-engagement in a groove (29) in the neck (4) of the bottle, and a stopper cap (11) coupled with the pourer and connected to the band by rupturable links (14), the tongues (26) being formed integrally with a ring (21) of heat-resistant material which is housed in an annular groove (17) formed in the band and is retained axially in the groove.

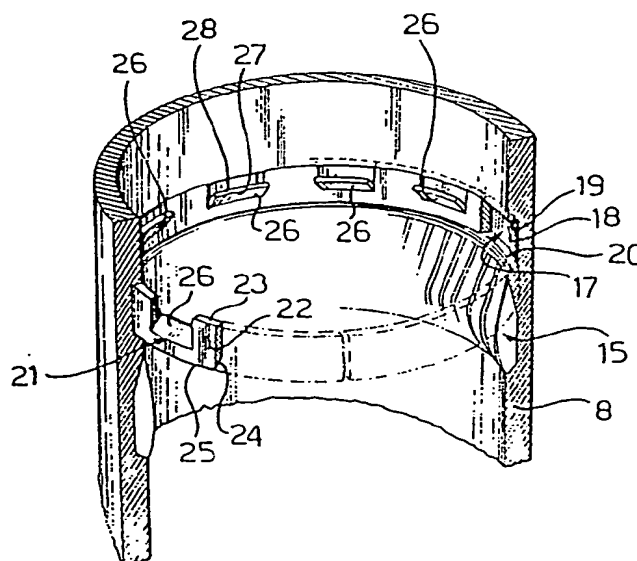
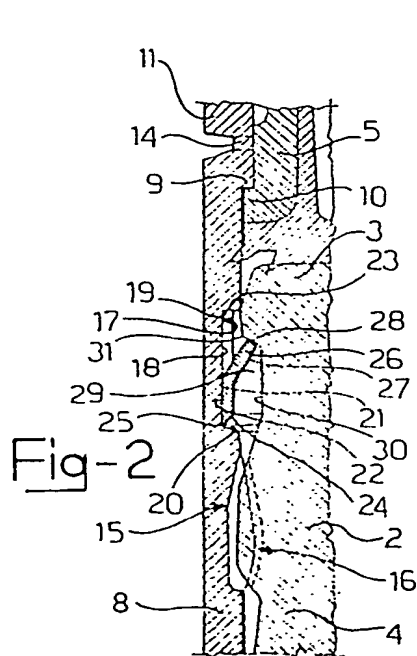


Fig-3

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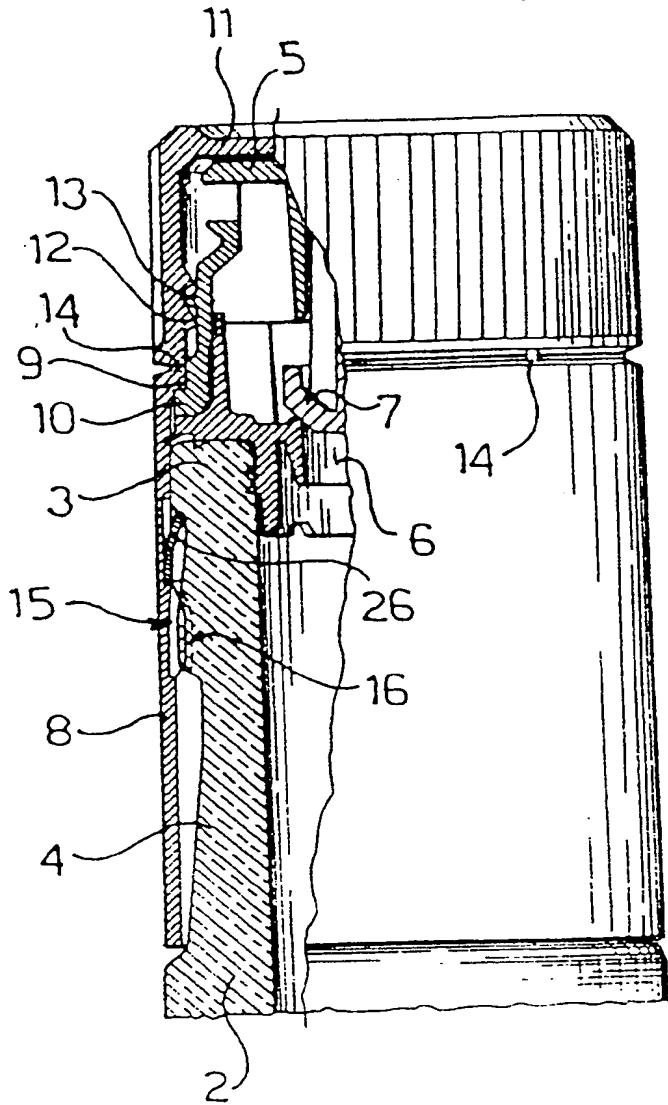


Fig-1

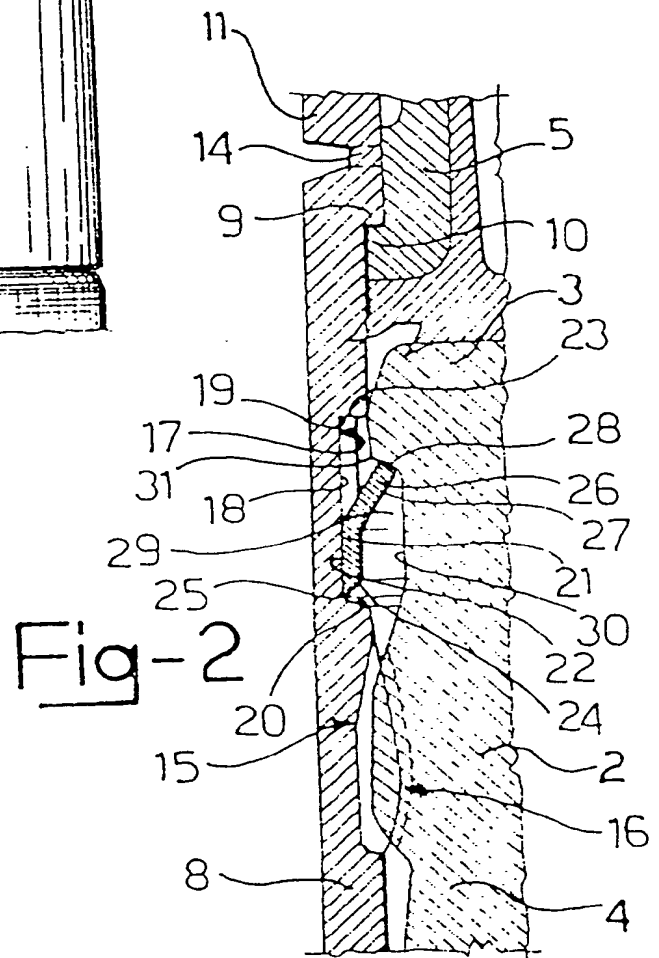


Fig-2

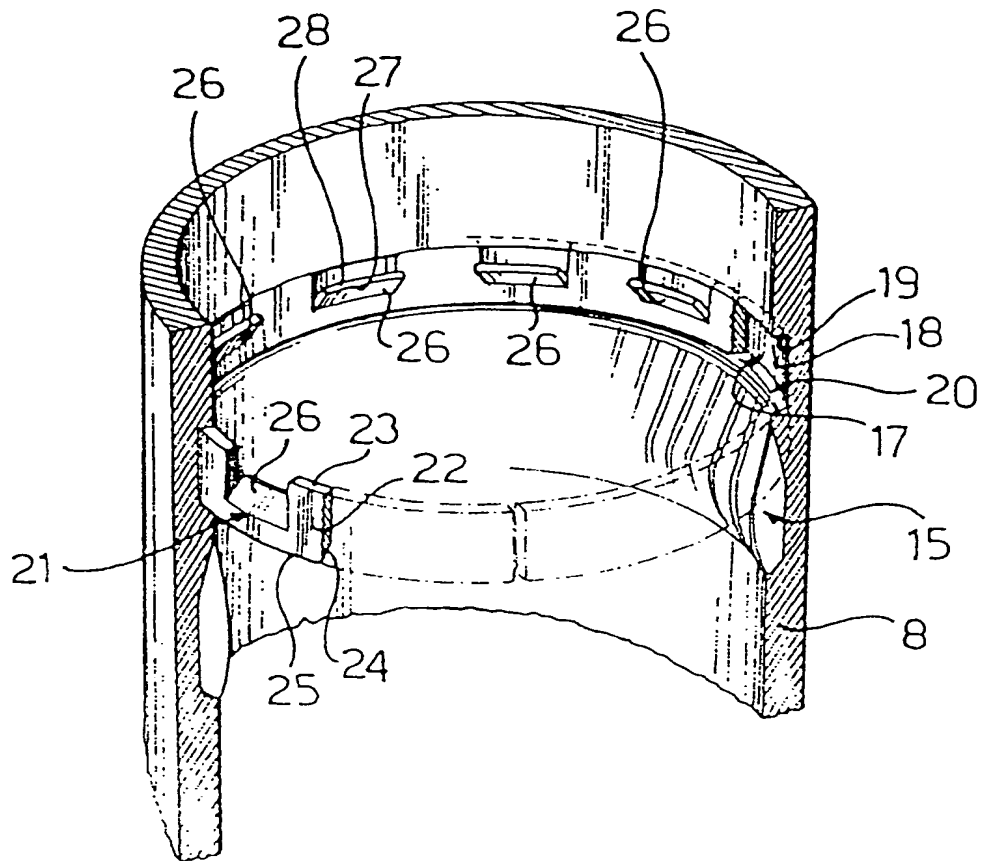


Fig-3

SPECIFICATION

Security closure for bottles

5 The present invention relates to a security closure for bottles of the type comprising a pourer, a non-return valve in the pourer, a band coaxial with the pourer for retaining the pourer on the bottle, a plurality of tongues on the band for snap-engagement in a groove in the neck of the bottle, and a stopper cap screwed onto the pourer and connected to the band by rupturable links.

10 The closure of the type specified above is, as known, an individually manipulable entity which is fitted to the bottle during bottling. The closure as a whole is put on by the fitting of the band onto the bottle neck until the pourer comes to bear against the mouth of the bottle. At the same time the tongues irreversibly engage the groove in the bottle neck.

15 At this point the bottle is closed. It is opened by unscrewing of the stopper with simultaneous rending of the rupturable links. When the bottle is closed again the torn links indicate that opening has occurred.

20 For its part, the non-return valve provided in the pourer prevents any fraudulent refilling of the bottle.

25 Although substantially fulfilling the purpose of ensuring the integrity of the bottle and its contents, a closure of the type specified above has a disadvantage which manifests itself when, during a fraudulent attempt to open the bottle, the closure is subjected to heating, for example by immersion of the closure in hot water.

30 Under these conditions, in fact, the closure softens in a short time whereby, with a certain dexterity, it is possible to exert a suitable pull on the closure, possibly combined with twisting, to remove it from the bottle.

35 Since the closure can then be put back on easily, its initial appearance will be restored exactly: thus, the desired total security is clearly lacking.

40 The object of the present invention is to provide a closure of the type specified which has structural and functional characteristics such as to overcome the disadvantage mentioned with reference to the prior art.

45 The object is achieved by a closure of the type specified which is characterised in that the tongues are formed in a ring of heat-resistant material housed in an annular groove formed in the band and retained axially in the groove.

50 Further characteristics and advantages of the closure according to the invention will become apparent from the description of a preferred embodiment which follows, by way of non-limiting example, with reference to the appended drawings, in which:

Figure 1 is a partially-sectioned elevational view of a closure according to the invention,

60 *Figure 2* is a sectional view of a detail of the closure of *Figure 1* on an enlarged scale, and

Figure 3 is a perspective view of a detail of the closure of *Figure 1*.

65 With reference to the appended drawings, there is generally indicated 1 a closure according to the inven-

tion fitted to a bottle 2 over its mouth 3 and secured to its neck 4.

70 The closure 1 includes a substantially cylindrical pourer 5 disposed in correspondence with the mouth 3 and coaxial therewith; it is made by moulding from a plastics material such as polystyrene.

75 A duct 6 is formed in the pourer 5, a non-return valve 7 being located conventionally therein so as to allow pouring form, and at the same time prevent refilling of, the bottle.

The closure 1 also includes a band 8 in the form of a tubular sleeve moulded from a plastics material such as polypropylene.

80 The band 8 has an end edge 9 bent over a corresponding annular edge 10 projecting from the pourer 5, and is fitted coaxially onto the neck 4 of the bottle 2 with limited clearance.

The band 8 is secured to the neck 4 in the manner which will be described below.

85 The closure 1 also includes a stopper cap 11 mounted coaxially on the pourer 5, it being screwed onto the latter. More particularly, the stopper cap 11 is provided internally with threading 12 which is engaged with corresponding threading 13 on the outside of the pourer 5.

90 It should be noted that the stopper cap 11 is connected to the band 8 by a plurality of rupturable links 14 made by moulding integrally with the band 8 and the stopper cap 11.

95 The band 8 includes internal teeth 15 engaged axially with corresponding teeth 16 formed on the outside of the neck 4 of the bottle. The band is thus prevented from rotating about the neck 4 of the bottle.

100 The band 8 also includes an annular groove 17 which is formed inside it in a position between the edge 9 and the teeth 16.

The groove 17, which has a bottom 18, an upper wall 19, and a lower wall 20, has a predetermined height and a predetermined depth less than the height.

105 A ring 21 of heat-resistant material, preferably steel, is housed in the groove 17 and has an outer wall 22, an upper wall 23 and a lower wall 24.

110 The height and thickness of the ring 21 are substantially equal to the height and depth of the groove 17, respectively.

Thus, the ring 21 is retained axially in the groove 17 by the engagement of its upper wall 23 and lower wall 24 with the upper wall 19 and lower wall 20 of the groove 17, respectively.

115 To advantage, the ring 21 is made from a sheet of string steel which is initially straight, then bent on itself into a ring for insertion in the groove, and finally kept in its bent form by the bottom 18 of the groove, the outer wall 22 of the ring 21 pressing resiliently thereon.

120 It should also be noted that, instead of string steel, the ring 21 may be made from other materials, as long as these are heat resistant; for example, it may be moulded from acetal resin.

125 The lower wall 24 of the ring is slightly bevelled inwardly to form a downwardly and outwardly facing cutting edge 25.

The ring 21 includes a plurality of inwardly and outwardly projecting tongues 26 having backs 27 and

ends 28.

To advantage, the tongues 26 are portions of the ring 21 separated by comb-like cuts in the string steel sheet, with slightly rebated heads bent inwardly and facing upwardly.

The tongues 26 engage the neck 4 of the bottle. In particular, a groove 29 is formed in the outside of the neck 4 of the bottle 2 and has a bottom 30 and an upper wall 31. The end 28 of each tongue 26 projects into the groove 29 right to the bottom 30, its head engaging the upper wall 31.

The band is thus secured to the neck of the bottle. Under these conditions the edge 9 of the band 8 acts on the edge 10 of the pourer 5 and keeps the pourer 5 itself in abutment with the mouth 3 of the bottle.

The closure 1 is applied to the bottle 2 by simply pressing the band 8 onto the neck 4 of the bottle. During this operation, the backs 27 of the tongues 26 slide over the mouth of the bottle, deforming resiliently, until they pass beyond the mouth and snap engage in the groove 29.

It is not possible to remove the closure from the bottle, however, even by subjecting it to substantial heating. In fact, although the band 8 softens, the tongues 26 which engage the groove 29 and, more particularly, engage the upper wall 31 remain undeformable.

The result is that, even in extreme cases with the exertion of a very strong pull on the closure, the tongues always remain in the groove, while the cutting edge 25 of the ring 21 penetrates the band 8 in correspondence with the lower wall 20 of the groove and cuts it circumferentially.

Thus, the attempt to open the closure fraudulently remains clearly evident.

The closure according to the invention therefore has the important advantage of ensuring the desired security even when subjected to a joint action of heating and pulling.

Clearly, an expert in the art may make numerous modifications and variants to the closure described above in order to satisfy specific requirements, all of which fall within the scope of protection of the invention as defined by the following claims.

CLAIMS

1. Security closure for bottles of the type comprising a pourer, a non-return valve in the pourer, a band coaxial with the pourer for retaining the pourer on the bottle, a plurality of tongues on the band for snap-engagement in a groove in the neck of the bottle, and a stopper cap coupled with the pourer and connected to the band by rupturable links, in which the tongues are formed integrally with a ring of heat-resistant material housed in an annular groove in the band and retained axially in the groove.

2. Closure according to Claim 1, in which the ring is of string steel sheet bent on itself and the tongues are portions of the sheet.

3. Closure according to Claim 2, in which the ring has a downwardly and outwardly facing cutting edge formed on one of its lower walls.

4. Security closure for bottles, substantially as herein described with reference to, and as shown in,

the accompanying drawings.

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